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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/730,559	12/08/2003	Lambert Feher	K 221	4248

7590 11/09/2004

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EXAMINER

VAN, QUANG T

ART UNIT	PAPER NUMBER
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3742

DATE MAILED: 11/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/730,559

Applicant(s)

FEHER ET AL.

Examiner

Quang T Van

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 2 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☒ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-4 is/are allowed.
- 6) ☐ Claim(s) ____ is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 April 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 12/8/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

This application is in condition for allowance except for the following formal matters:

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, "a microwave source" recited in claim 1, line 2, must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Allowable Subject Matter

2. Claims 1-4 are allowed.

3. The following is a statement of reasons for the indication of allowable subject matter: the prior art of record does not show or suggest a dielectric tube extending through said applicator parallel to the axis of said microwave in-coupling opening in said applicator and normal to opposite side walls of said applicator, of which one includes said in-coupling opening, a metallic tube stub sealingly connected to each of opposite ends of said dielectric tube outside said applicator for conducting a fluid to be heated through said applicator, which fluid forms a load, said tube stubs being also joined to said opposite side walls of the applicator in a microwave-tight manner, wherein said applicator has rectangular shape which is adapted to the wavelength λ of the microwave supplied by the microwave source in such a way that, in the applicator, the linearly polarized base mode TE_{10} of the microwave is excited, the axis of said dielectric tube extends parallel to the field polarization of the linearly polarized TE_{10} mode and is disposed at a distance of about $\lambda/4$ from the respective nearest front wall of said applicator, and the axis of the dielectric tube coincides with the field maximum of the linearly polarized TE_{10} mode, the distance between the center point of the incoupling opening and the axis of the dielectric tube is so selected that field energy coupled into the applicator is completely or nearly completely absorbed in the dielectric tube through which the fluid to be heated is conducted and converted therein to heat, such that no or only negligible reflections occur in the applicator, and said tub stubs have an open width adjacent the side walls of the applicator, which equals the outer diameter of the

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dielectric tube over a length of $\lambda/4$ to $\lambda/2$, and their diameter becomes then smaller over a length of $> \lambda/4$ so as to provide a blocking structure preventing an escape of any microwaves from said applicator as recited in claims 1-4.

Prosecution on the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

A shortened statutory period for reply to this action is set to expire **TWO MONTHS** from the mailing date of this letter.

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Holber et al (US 5,625,259) discloses a fluid-cooled plasma applicator for microwave absorbing fluids. Tracy et al (US 6,740,858) discloses a microwave heating applicator for heating a moving fluid. Moshammer et al (US 5,122,633) discloses method and apparatus for radiation microwave energy into material containing water or mixed with water. Schlie (US 5,235,251) discloses a hydraulic fluid cooling of high power microwave plasma tubes.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quang T Van whose telephone number is 703-306-9162. The examiner can normally be reached on 8:00Am 7:00Pm M-Th.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robin Evans can be reached on 703-305-5766. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

QV

QV

November 1, 2004



Quang T Van
Primary Examiner
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